


Please cancel the priority statement at page one line 1 and insert the following priority statement:

C1 This application claims priority, as a divisional application, from the parent U.S. application 08/525,639, filed September 6, 1995, which is a national phase application of PCT/US94/02433 filed March 8, 1994, which is a PCT application of US nonprovisional application number 08/028,844 filed March 10, 1993, now abandoned.

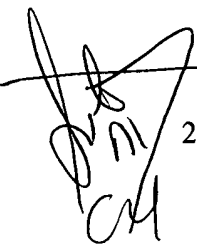
In the claims:

After entry of the attached substitute specification, including claims, please amend the claims as follows:

1. (Amended) A process for decomposing waste plastic comprising the steps of:
- supplying waste plastic;
 - mixing said waste plastic with a diluent to create a solution;
 - ? c. controlling the content of said solution;
 - d. heating said solution to a reactant temperature to substantially depolymerize the waste plastic; and
 - e. collecting the by products of said depolymerization process.
- C2 2. (Amended) A process for the recycling of waste plastic comprising:
- mixing said waste plastic with oil to form a mixture;
 - b. heating said mixture in the presence of about 0.5% to 10% wt of a free radical initiator to between about 325 and 375°C for a period less than about one hour; and
 - c. recovering hydrocarbon distillate as an overhead product and condensing and storing said distillate.

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5. (Amended) A process for decomposing waste plastic as described in claim 1, wherein said step of controlling the content of said solution comprises the step of adding a third substance to said process respective of said waste plastic and said oil.
6. (Amended) A process for decomposing waste plastic as described in claim 1 wherein said step of controlling the content of said solution comprises the step of controlling free radical precursor of said solution.
7. (Amended) A process for decomposing waste plastic as described in claim 6 wherein said step of controlling free radical precursor of said solution comprises the step of adding a waste plastic material to said process.
- C³ 8. (Amended) A process for decomposing waste plastic as described in claim 6 wherein said step of controlling free radical precursor of said solution comprises the step of adding a substance chosen from a group consisting of polyvinyl chloride and polyurethane.
9. (Amended) A process for decomposing waste plastic as described in claim 1 wherein said step of controlling the content of said solution comprises the step of sensing the relative amount of free radicals likely to be present in said solution after it is heated.
10. (Amended) A process for decomposing waste plastic as described in claim 9 wherein said step of sensing the relative amount of free radicals likely to be present in said solution after it is heated comprises the step of ascertaining the reactant temperature of said solution.

Please insert claims 23-33 as follows:

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23. A process for decomposing waste plastic as described in claim 1, wherein said step of controlling the content of said solution comprises controlling the free radical content of said solution.

24. A process for decomposing waste plastic as described in claim 1, wherein said step of controlling the free radical content comprises controlling the free radical content to substantially depolymerize said waste plastic.

25. A process for the recycling of waste plastic as described in claim 2, wherein said waste plastic comprises comminuted waste plastic selected from the group consisting of: polyethylene, polypropylene, polystyrene, nylon-66, polyurethane, polyethylene terephthalate, polyvinyl chloride resin, and combinations thereof.

26. A process for the recycling of waste plastic as described in claims 25, wherein said oil comprises oil selected from the group consisting of: waste motor oil, FCC slurry oil, vacuum distillation tower bottoms, fluidized catalytic cracker slurry oil, heavy heating oil, bunker oil, and combinations thereof.

27. A process for the recycling of waste plastic as described in claim 1 wherein the free radical initiator comprises a separate catalyst precursor added to said waste plastic and/or said oil.

28. A process for the recycling of waste plastic as described in claim 1 wherein said waste plastic includes polyvinyl chloride and no separate free radical catalyst precursor is employed.

29. A process for the recycling of waste plastic as described in claim 26 wherein said waste plastic dissolves in said oil.

30. A process for the recycling of waste plastic as described in claim 26 wherein the distillate comprises a distillate selected from the group consisting of toluene, styrene, and combinations thereof.

31. A process for the recycling of waste plastic as described in claim 26 wherein additional free radical initiator is introduced in response to a decrease in distillate yield or increase in temperature.
32. A process for the recycling of waste plastic as described in claim 26 wherein said overhead further comprises non-condensable gas and normally-solid speciality substances.
33. A process for the recycling of waste plastic as described in claims 29-32, wherein oil containing dissolved waste plastic is recycled to a reactor.